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# land use planners

... soil surveys  
can help you



Soil Conservation Service  
U.S. Department of Agriculture

## LAND USE PLANNERS

Planners already know that poorly drained areas are unsuited to septic tank absorption fields, that foundations and walls of buildings on soils that shrink and swell may crack, and that floodprone areas are unsafe for housing. The consequences of poor land use are only too familiar.

What planners need is a means by which principles of sound land use can be related to specific tracts of land. Is there a high water table? Is the area in a flood plain? Is shrinking and swelling of soils a hazard? Is natural soil drainage adequate? These and other questions must be answered for each area before land resources can be safely allocated for housing, transportation, recreation, industry, and agriculture.

This pamphlet tells how soil surveys available from the Soil Conservation Service can help planners determine the suitability and limitations of soils in given areas for houses and commercial buildings, septic tank absorption fields, roads and highways, recreation areas, and many other land uses.

Soil maps colored to show degree of soil limitations for various uses (green—slight, yellow—moderate, red—severe) provide a basic reference for planners.



Soil surveys can help in planning site conservation to prevent erosion.



Soil surveys can help planners identify areas suitable for recreation uses.



## How Soil Surveys Can Help Land Use Planners

Soil surveys can help planners make and substantiate the decisions that local government officials translate into zoning ordinances, building permits, authorizations for sewer extension, and other regulations that mold a growing community. Information about soil limitations for given uses helps prevent major mistakes in land use and unnecessary costs to individuals and the community.

Soil surveys help in determining the extent of floodprone areas, and they rate the hazards that affect use of soils in such areas. In many states soil surveys are used to guide municipal and other government agencies in restricting the use of flood plains for housing, septic tank absorption fields, and other forms of intensive development.

Zoning areas for housing, recreation, com-

mercial, and other kinds of development should take account of the suitability and limitations of soils for such uses. Soil surveys describe soil properties in detail and can help planners establish general patterns of soil suitability and limitations for various land uses.

Erosion and sedimentation may increase where land is being developed. Sediment has become a major pollutant, and communities throughout the Nation spend millions of dollars every year just to remove sediment from drinking water. Planners and other authorities can use soil maps and soil data to identify sources of sediment and to develop plans for controlling erosion and sedimentation.

Septic tank absorption fields do not work in wet or impermeable soils. Soil surveys provide detailed descriptions of soil properties that can be used to determine the suitability of areas for absorption fields. They indicate soil hazards that affect absorption fields, such as slow permeability caused by high clay content, the presence of a high water table, or excessive permeability that may allow effluent to pollute ground water. In many parts of the United States soil surveys are used as a basis for ordinances that regulate use of land for septic tank absorption fields.

Through use of soil surveys, roads and highways can be routed to avoid major soil hazards, and sources of borrow material needed in constructing highways can be located. Contractors can bid for work more accurately and can consider soil suitability and limitations in planning and designing specific structures.

Recreation uses of land should be based on suitability of soils. Soil surveys can help in identifying areas suitable for campsites, golf courses, manmade fishponds, and many other recreation facilities. They also can help in planning the construction and layout of large recreation areas that have restrooms, parking areas, outbuildings, and other structures.

Prime farmland can be identified through use of soil surveys. Other areas suited to

Irreplaceable prime agricultural land is being converted to urban uses. Soil surveys can help planners select areas other than prime agricultural land for development.



Built in 1963 at a cost of \$1.2 million, this school was condemned in 1970. Shrinking and swelling of the soil cracked the walls and foundation. Soil surveys describe soil hazards that affect building construction.



Soil surveys can help planners identify areas suitable for sanitary landfills, sewage lagoons, and septic tank absorption fields for waste disposal.

Soil surveys can help planners identify areas that are subject to flooding.



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development and not so well suited to farming may be selected for development instead.

### **What Soil Data Are Available?**

The Soil Conservation Service publishes soil surveys of counties throughout the United States. The boundaries of each kind of soil in the county surveyed are shown on detailed maps. Soil surveys describe important soil properties, such as flood hazard, natural drainage, depth to bedrock, depth to seasonal water table, permeability, shrinking and swelling potential, bearing capacity, and content of silt, sand, and clay. The Unified and AASHO engineering classifications of each soil layer are given.

Soil surveys also provide interpretations of soil suitability and limitations for foundations of houses, schools, and commercial buildings; for sanitary landfills, sewage lagoons, and septic tank absorption fields; for installation of underground pipelines; and for development of parks and other recreation areas.

### **How to Obtain Soil Surveys**

Call the local office of the Soil Conservation Service to determine whether a soil survey of the area that interests you is available. If the survey has not yet been published, you can arrange to examine soil maps and data available in preliminary form.

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